Notebook Series -- Pocket Notebooks
Notebook, PN-15-07-27

The dated entries in this pocket notebook cover the period July-August 1915. The book was used by Edison to record ideas about business matters, experiments to be tried, and other tasks to be performed. Many of the notes have been crossed out and marked "Ent." Clean transcriptions of some of the entries can be found in PN-15-07-22. The experimental notes pertain primarily to chemicals. There are also notes on disc records and salting experiments. The business-related entries include statistics on record production and phonograph cabinets on order, along with notes about chemical contracts, places for recitals, and various production costs.

Among the numerous Edison employees mentioned in the book are experimenter Charles T. Dally; H. H. Meno Kammerhoff, supervisor of operations at Edison's chemical plants in Silver Lake, New Jersey; plant inspector H. G. (Goldie) Goldthwaite; and chemists Victor L. King and Ludwig F. (Louis) Ott. Chemical manufacturers and suppliers mentioned by Edison include Butterworth-Judson Co., Dow Chemical Co., General Chemical Co., Grasselli Chemical Co., and Heyden Chemical Works. The pages are unnumbered. Approximately 150 pages have been used.

Ent

The amount of iron in waste acid from Myrbane pots
One gallon contains 2.67 grms
250 gal charge Coke
667 grms —

Raise Lott to 25 week —

Woodward —

Pure Benzol	52 %
Toluol	12
S Nap	5.8

Coke — 5% acid wash
5% in heads
20% wash oil (get this back)
Naphthalene 2½ barrels daily
probably 300 lbs pure
Office get 2000 gals daily Lott
Benzol 1040 gal Toluol 240
S Nap 116 gal

Dried

40 cc

Cake weighed 24.4
White salt 16.0
Yield 1.01 40.4

39.6 white salt

50 cc Salt
25° Benz
Recent

30 cc

Cake weighed 23.0
White S " 8.8
Yield 1.06 31.8

27.6% white

20 cc

Cake weighed 16.5
White Salt " 3.7
Yield - 1.01 20.2

18.3% white

Took 48 cc water (this weighed much 52.32 cc of liquid)
13 grams Salt
added 40 cc Benzsulfonic acid

Use Vac filter
Cake weighed 39 grams
White Salt 28 (too wet)
Yield 1.67
Neutralized 90 cc of fused liquor

Same as above but
30 cc Benz acid 33 grams
12 white salt
Yield 1.5
Neutralized 83 cc fused liquor

ditto 20 cc Benz acid
22.5 grams
4.9 white 1
Yield 1.4
Neutralized 78 cc fused liquor

Miniature Lamp Ceylon Graphite
Sample Leaf split -

In fusion pot liquor
3 days soon opens settles
4 to 1 -

Sample cast from Buffalo
Foundry & Machine Co

#6 grade for Oleum OK
no loss

dilute in Centrifuge liquor
for 65 hours 41.95 grms
loss 2 grams 0.42%

2 grade - in Centrifuge acid
240 grms -
loss 1 grm 0.42%

Single Na m Benzol Sulfonate Na

58.5 lbs salt turns
158 " Benzene Sulfonic acid
to The Sodium Salt.

July 19

80	824	32960
100	939	46 950
150	4996	374 700
200	4231	423 100
250	1860	232 500
X	3276.	49 140
		1.159.350

Wrong

Think this is OK

Wrong

480 gals water } 36"
1080 " salt } brine test 9.1% = 39 1/4
260 - Benzol } 19 1/2
2 to 1 is 19.6 min

Kings note
If charge of sulfonated Benzol is 200 gal 15 minutes When not less than 400 gals water + 900 lbs of salt

I suggest that 500 gals of water + 1150 lbs salt be used first + all found OK then 400 gals water + 900 lbs salt

I do not think it possible to go below this limit

We always used 2 Vols of Salting liquor to 1 Vol of Sulfonated Benzol.

48 water cc
13.5 grams NaCl

increase the bulk of the water 4.5 cc

Increase from 48 cc to 52.5 cc

Bulk increased 9.15%

actual determination

Nitrating Acid (waste)
in 4 days settled in
gal bottle 1/2" depth
at bottom —

First Batch fused & dissolved
L Ott - determination

100 cc of liquid dissolving
phenol Resin Soda
requires 28.42 grams
H_2SO_4 to neutralize
Using Litmus paper -
wrong see Ott's paper
on desk

Benzenesulfonate Soda 158
87% is acid
12.7% is Sodium

Benzosulfonate Soda 158 lbs
gives 60% phenol
or 94.8 lbs

Theoretical CP
3600 lbs Benzsulfonate Soda
2000 lbs Caustic Soda
produces 2160 phenol

Sulfonating
2759 gals Benzol
2007 lbs Benzol. 2100

Hoffman 12000 day when blanks
are all shellac reagent
1785 lbs phenol daily
7 to 1 45 mo

Seal Irvingly about
Nickel plating

Have Copper & brass works
for Rammelhoff still

Immersed in thin layer
Centrifuge liquor 3 days
dried up & renewed

1 sq in 2" surface

Brass lost 90 mlg
Nickel 60 "
Copper 0.09 "

Use Ni plated screws

Try the bronze paint also
on Ni plated brass +
use thicker brass 50%
thicker —

Tried Oil = Paint the
Screws in Centrifuge
after Nickel plating —

1st liquor from floating

70 cc of liquor took 12½ cc
conc Sulphuric to stop
Effervescence
Total height Column
82½ cc
Height phenol 7½ cc

Height of total in inches
6.75 inches —

Height phenol ½ inch

phenol 13.5 to 1 —
If height is 120 inches
phenol should be 9 inches

3600 ~~[illegible]~~ BenzNa
2000 Caustic Na
Water 1600 gals
3½ ft in Tank –

2.89 lbs to Gal — .3612 to 16 units
This is 26.4% Solution.
Drain tank 5 ft 6

Ask Dr Lafferque
what Ammonia
we should use

Lucas glass globes
for Cyclohexylamine

Keep 3 Asbestos pads
Shuffle pads etc on
hand ready

Have pots on funnel
phenol dacon corked
leaks –

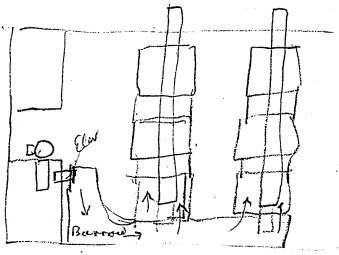
Drill flanges for
Lawrence –

Fused 216 grams BenzNa
150 NaOH,
½ of this gives 41 cc
(single phenol when stopped)
3 min after all the BenzSalt put in
4 43 cc when run for 30 minutes
after salt all in –

36 BenzNa 25 NaOH,

40% gas
Should be 60

CR



1 Man on barrow
1 To spread & measure on top —

3600 Berry Na
2000 Na OH
1500 gals water in dissolving tank

Dryer Top box

See how much water it takes to dissolve cold Dallys fused Cake —

Kung & Sons
Dr Victor L Kung
Monk, Avz & Woodridge
sts —
Woodridge NJ
Telephone 352
Rutherford

One Sulfonation

275 Gallo Benzol. 7.3 lbs Gal

2000 lbs Benzol,

Molecular wt Benzenesulfonic 158
Mol wt Bengs Na 180
Weight of Benzo Acid 3160 lbs

158 goes in this 20 Times —

58.5 Mol salt required to make soda salt
11.70 lbs Salt needed –

518 gals is total of one Sulphonation to wit
275 gals Benzol
30 " 98.% H_2SO_4
213 " Oleum
518

King calls for twice this amount of salt – why?

518
21
497

518
21
207

3160 lbs sugar 440 lbs metal Na
1225 lbs salt Contains
440 metal,

Kung use twice the amount of salt
ask gw a to fig it

D2 (a Vergne say use alloppo)
23° B ammo —

Dally wanted Kabrich 10 Be
now has it 13 B ammo

---

86 @ 94 lbs fresh
Coulmfungs salt to
1 B approx.
10 lbs to a pail
Variable

Rough Expt
Over Pacing Sulfonic acid

26 H_2O 20 cc Pacing
5.5" gm salt
3/16 thick white dark 1/4

48 H_2O
5.5"
5/16 white 1/8" dark ??

72 H_2O
18.5" Nacl
1/16 or less white
3/8 dark - good looking

all 40 Tabs
Bottom of shell
but at 30 tabs
[illegible]
80

Salt normal Tang

62.5% lb or phenol from 100 lb
Benz Sulf Na –

Get two ~~more~~ Cranes

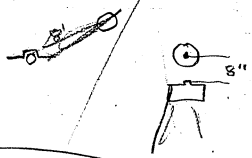
Ask Guldsworth about
Motor on Crane

2000 lbs Benzol should
yield 3600 lbs of Benz Na
dry – 62½% of 3600 is phenol

Should get 1300 gals of
Calcium sulfite liquor from
the 2000 lbs sulfonation,
about enough to neutralize
but if 20% more soda used
means use free acid –
Sometimes with 2000 Na Ts
3600 Mag hold use & with free
acid

600 gal
1350 NaCl } Spec 1,125

Golden wants Engine
Leather -6" to 20/16" swing
with Counterweight



Paria 2 Hoods &
2 Stacks [illegible] Hooks

go for healing Corks for Dryer
only thing that could delay

CaCl - Drums 400 lbs -
get 20 drums - got
5 now

The most Hal Dallas
reason liquor could
settle in 10 days
is that 80% to still 12 Deg
Mud

	acidity %	2 gram Loss of weight %	%
#1 Sample -	4.4	186 mg	9.3%
2 gram sample			
#2 Sample	3.9	131	6.5
#3 Sample It was dry here 3 Hours 20 Min	3.6	1 lb 3 oz 102 3 1/2 lb 110	5.1
#4 Sample -	3.6	41 3 1/2 43	2 -

Experimental Dryer 20 lbs batch run
Through calcine - to get lime -

Started 4.50 PM - spread
5.11 - Rabbled by bunching + spreading
5.33 Sent to #2 bench + spread
5.50 Rabbled
6.10 Sent to 3rd shelf
6.30 Rabbled - bulk here too much for
no smaller rake -
6.50 Sent to 4th bench - small rake.
just does it by vibrating no movement
7.14 Rabbled #2 rack should be little larger
7.30 Sent to 5th bench
7.50 Rabbled -
Takes 1.45 sec to rabble 16
mins for cut hole of 1 side = 20
mins to sample -
8.10 Sent to 6th bench
8.30 Rabbled #2 rake almost does it
8.50 Sent to 7th bench
9.10 pulled - took 4 samples

Temperatures - Thermometer inside
159 = Side Therm 110

Henry

1 = Heating Coils for Dryer
2 Stirrer shaft & part for drain pot
3 Test Extractor plug

Jack Dalley, clear fusion (Lyman)
50cc added lateral Centrifuge
acid — increased to 112 cc
Little more than Equal
quantities —

Gives sharp clear mark
The funk Equal quantities
well do —

1800.

1800.
12
3600
1800
1800
27

Para

July 27 — Goldie
Wanted

1 Fusion blades + shaft assembly

2 Quench Pot.

3 Paddle blades & shaft assembly

4 1 Cast iron elevator 5'dr

5 = 1 CT Bevel Gears Lrd

6 17-T-2 Bors C 6209
34-T 2 3/4 "

7 Thrust ring 2 3/4 Bore Sleeve

8 = 2 Hooks + 2 Sleeves for Crank 17

Things Coming

One condiment pot shaft C Wheeler 28th
" " " 29
" " Sprague 29

Pepper & Dryer Simmons 29
30
31

Tension quenching pot stand
Cinderella Co 30th
shaft & paddle C W 31

Tension shafter Pad Aug 3
One Ball thrust SP Specialty Co 29
One set gears Phila Gear Co 31

Yale – 1/2 part
Honey 108 grms
75 Wash –

got yield 44cc + 6cc with
Benzol – Total 50cc Crude

15 minutes fume Wash.
15 " part in Benzol
30 " after

Temp 275 @ 290

Wooden shovels for slush
Cans,
Lead pipe from Salting
tank to slush Cans
Wood box on wheelbarrow
Lead lined Centrifuges
Everything leaded

100 grms. Dallys Fuard Cake
228½ CC H_2O —
153cc latest Centrifuge used
So much iron that Cant see
placed – MG must take
Iron out —

Reg 1st Fusion Cake
100 grms 228½ leaded
800 grams Dallys 1st Cake
large lot – 1000 CC
glass 1100 in —
Settled 1 hour 50 min
only 18% is iron
950 cc clear
175 H_2O

filtered in 1 hour 33 min
4X6 Box sand filter
1/2" residue —

1/2" water iron third
1 Hour 12 min

~~1450 cc glass~~
40 100 grms Dolly Cake
228 cc nitric

Small 500 cc
23 hours
265 cc Residue 75 cc

Dolley sends 5 lbs of
Undried Berg Salts

To keep ice from pipes +
bottom of Cans in freezing
bath allowed max
23 Baume
We 1st had at 5 Baume then
13 which it is now

Rig up Test Lab in st. ll
Bldg —

---

600 gals weighed 1350 lb Salt
when Salt put in Milk
increase 9.4%

Try Silver plated Copper
dishes brass in Centrifuge
acid —
Also gold plated —

Dryer Experiments 2 1/2 pail
Each dose at 15 p —

1st Test			2nd test	
4th Bench	6.1 acidity		4.	6.6
5	"	4.6 "	5	5.3
7	"	3.9	7	3.6

Acidity dont indicate degree
of Volatile —

	Acidity
1 Bench	7.3
2 "	7.1
3	6.8
4	6.6
5	5.3
6	5.1
7	3.6

This seems to show we need more heat

Sand filter – 800 grms 1.77 lbs
Dallys 1st fused cake (360 lbs 160 gal water) settled solution –
put 375 cc mud in 4X6 sand filter already coated with mud – goes through in 1 hour & 40 minutes –

Dallys fusion liquor –
50 cc clear when neutralized with Centrifuge liquor clare 85 cc
Works good 12 cc phenol to 100 cc settles fair –

German Pat 281482
Coumarone –

Dallys 1st fusion Cake –
100 grms 228.½ cc water requires 17 cc Conc H_2SO_4 to neutralize –

No separation of phenol takes place by using Benzol when liquor is fresh mud

If filtered fusion liquor
neutralized by 95% H_2SO_4
no gross change, gives milky
liquid - if too much acid
added milky stuff settles
in 6 allow side of phenol

Dissolved latest Benzyna Salt
in water. Water after dark
filtered off - Considerable
amount not soluble -
Most of the insoluble is
not soluble in acid
Considerable deposition
of black after precipitated
by water to crystals, leaflet

Dallys caustic liquor
50 cc get 11.70 phenol
pure acid to neutrality increases
bulk to ~~60 cc~~ 12%
Went to 60 cc + 85 cohoin
Centrifuge acid wash

get Solubility of Benzyna
in Conc Salt & Na_2SO_4 Sol

Damp stuff from Centrifuge
2 grms 2½ hours
95@100 Cent dry oven -
Loss 38% mlg -
19.3%
After 12 hours put like air it
reabsorbed 193 mlg
50% reabsorbed

Other pieces Dallys 1st fusion
Cake - 100 to 228½ H_2O
800 grms taken (cake)
1000 CC - 960 - 10 10 AM
Mud 360 cc 2/3 PM
348
370 4/5
320
average 2 jars 30% mud
8 am next day
258 cc

Took 578 cc of settled mud
put in sand filter which
had water in previous
& 1/2" of Fe_2O_3 mud
already —
All out in 1 Hour 45 mins
~~After drying Mud [illegible]~~

One gram of Benzidine
dissolves in 50 cc.
of Saturated Salt
Solution —
loss 250 pounds 2% —
21600 lbs
13 Na Salt
by washing Centrifuges
If plenty Salt Solution
with a gallon it would
be very little —

After filtering Mud & leaving
it 1/2" deep on 4X6 Sand
filter — put in 1/2" water.
All out in 1 hour 12 min
No 1 sample — 11.8 grms Naoh 100 cc
2nd Dose water all out
in 52 minutes
Sample 2 8.2 gr Naoh. 100 cc
3rd Dose water all through in
15 minutes.
3rd Sample. 3.6 grm Naoh 100 cc
4th Final Sample 2. grm Naoh 100 cc

1st + 2nd 78.1%
1 2 + 3rd 92.1 —
But there was a lot of
Liquor in Sand —

Saturated Solution
Sulphate Soda
80cc to dissolve one
gram of $BaCl_2$

Shell Salt dont precip out
from 2 liters Na_2SO_4 or NaCl
Too dilute
Something wrong about
the above Experiments

Made strong Solution
of $BaCl_2$ in cold
poured a little into
both Saturated
Na_2SO_4 & Salted NaCl
no precip — added
shell salt no precip
Cooled by hydrant
water only Na_2SO_4
showed trace of precip

It shows $BaCl_2$ is
quite soluble in the
Conc Salt Solutions
of course they wont
hold much but
Utah 50 cc well held
80 to 100 grams
but Cooling by hydrant
water —

Kunnuhoff recd Badge
still 4500 lbs in 25
hours — ~~[illegible]~~ Grow-
phenol slowly yellow
well here Copper in
Neordway —

See about Nelvator for
Acetanilid – has to be
dis in Ether pinum of
then Nelfalsan added given in
think Extra mixed with
Dave at 4 aqu to 1
Acetanilid dissolves it
then use mixed acid

Took 100 grams 228½ cc
water –
poured off clear solution
filtered mud washed at
+ dried at – weighed
1.040 grams –
Thus is 107 lbs Fe_2O_3 To
daily output 10500 lbs
Ruby Na 75 lbs metallic

The Graduated 1/16 Acetanilid
long filters recommended
by Parker for packing
Acid Valves –

In Opium 3½ days
Doubled In thickness is
OK – it attacks it

In Carbonate acid
only swelled 1/3 more
not affected at all

In Fusion Liquor Ammonia
No effect –

Centrifuge Cake wet
2 grams - after drying
wt 1.604
put out in air extremely high humidity -

1st Hour	gained	27 mlg	
2	"	10 "	loss
3	"	23 "	"
4 + 5		80 "	"
6		20 "	"
7		29	"
18		14	"
		203	

Total gain
Weight after 18 hours 1.807
10% of original weight gain
originally about 20%
gradually
Emulsifier Total oils
used in Salting Wax
Rapid stirrer
at 120 - then pour into CC
glass + allowed to settle

See Jnl of Soc Chem Industry
July 15 p 697

Test our Bengal absorbing Oil new acetone ext. acc. of Bitumen gets in from Tar

Aniline in water can be extracted from it by Hydrocarb - this is true of nearly Nitrated reduction products. The Nitro Compound form which they are made extracts them from the water

Stockings boiled Albumen dipped H_2SO_4 per cent strength then quench in cold water (leak dye) - dry, fix with formaldehyde

Get Hygrometer for Dally & work drying calculated by it –

Fleming – would like 10 lbs of Nickel hydrox

Also old cells which are Especially low – Say A4 balsa 75 cycle (take removed) –

Then make 2 test cells of it – to see how long then crack in 100 solutions & do various things to get it OK

Cameron's crew made for Cocoanut Naphtha by using 98 acid in very thin stream agitating having cooling coil in liquid & keeping cold to cool,

See if sample of Cameron's I have will condense with 6/4 – or formaldehyde if it would pay worth

Rubber if unattacked by hot 33% KOH.

Ask Moore where the Tax is he was to send Especially the S Map Tax

Cost made tables, tubs
Mixer.

Cost 2nd hand hydraulic
at least 19 x 23 for
X Cylinder —

Estimate. 4 Aniline pots
Aniline 65c acid 3.75 lb.
2455 gal to 150 gal Benzol
Cost without repairs 29.58 c lb.

acid
is imp

Letter from Olson Cost
Myrbane ~~not~~ is 14 cents
without repairs — probably
16 cents
Aniline Cost to Convert 6.3
or 27.3 lb without
Repairs —

See of Cost fix Loop
Aniline Pot so almost
perfect in + out cousin —

Mixed Acids B+J 320 000
General Chem 350 000
3000 To Nitration

7 Nitrations daily usual it
up — 4 for Aniline given
3 Nitration 4500 daily for
Myrbane —

850 cc water with some 10 cc
phenol dissolved in it 195 grams
K_2SO_4 dissolved in it but
salt came out but sulphuric acid
brought it out.
When the excess of phenol dissolved
it salts come out but least part
dont come out in 20% of doubt of
all comes out on solution

Hurry Up

Fuel Oil –
Aluminum Pipe for oil lb. Pump
Shaft + paddle for Quenching Pot – Today
Extra Gears 17 + 34 T for Quenching Pot
62 shipped Saturday
Fusion
Stand for Quenching Pot – Fusion
today
Main shaft Assembly for furnace Pot
Monday
Extra Springs for Ether Compressor
Aug 9
5 HP. Motors for Elevator Screens
got the Direct Wire
Wire Screens for Centrifuges
7½ HP MM Shunt wound Motors,
want Extra armatures, got Wire
from McQuiston Have asked
Lee Hewitt

Cost 1 Auto Pat Compleh
$1654 Complete without
Small & Large Tools –

Ice making – Storage (old) ng
CaCl 1.16B – brine – 22 Baume
MgCl with ammonia
Saturated Sol CaCl or MgCl should
remain liquid without 5% salt

Hoffman wants Sept 1 to give
1st 500 lbs ammonia daily
65 cents –
Hoffman thinks can get cond
much lower after 1st year –

See if we have
enough tops plate
for capacity –
250/day

Phenol Na Salt old but dried
2 grams spread out on a
4" Watch glass

placed in Water bath oven
at 90 Cent

lost in 30 min 8.7 %
" " 60 9.2

This shows 30 min test is ok

Thompson – Water Cycle
Licensing get say it
ng4 Cerculeigh on
Cycle battery –

(55)

Cost Sulfonation

275 gals Benzol	165 00
3167 Lbs Oleum	35 47
420 Lbs 98%	3 36
	203.53

3600 Lbs Benz Na-	
2000 NaOH, 2.25 Lb	248.83
2500 " "	260 08
3000 " "	271 33.

If product 1650 Phenol 6 Lbs gal. Benzol Then

2000 NaOH.	15.30 Cents Lb
2500 "	15.77 "
3000 "	16 42 "

Have we got Steam Belts on all the Aluminum pots -

How about Iron feed

Average Cost Benzol with my profits included in Wood work 47.83

Schedule.

100	65			
C 150 -	40			
C 200	35			
B 250	25	165	220.	
Amb 30	33			
50	20			
75	15			

Cabinets on order

A 100	126.95		
C 150	91.87	5 old	
C 200	61.00	51. old	
C 250.	50.00.	3267 old 250	
Amb 30	329.85		
50	32.67		
75	56.		
180 - 144.	343.08	343 old on hand	

Discs Machine on order Aug. 5/15

100	6000
150	3458
200	3144
250	1675
	14277

See abt 50 — Moore

Want good Gold plating Capacity —

We want 6 cake horns need want to make them complete, painted & all in horn dept. —

Waste Nitrating Acid Myrbane
Spec Grav 1.685 at 23°C.
10 grams has 17.5 grams acid
figured as H_2SO_3

Chemicals wants Jack Quinn as permanent pipe fitter at Anying plant, see Holding —

Took 25 cc Phenol
22½ grms NaOH powder
added water till 125 cc
was total –

Put in 15 cc Conc H_2SO_4
25@28 cc phenol comes out
& yet blue Litmus was not
reddened – put 1 cc more
H_2SO_4 in then it turned
Very red, No more phenol
Came out ~~[illegible]~~

25 cc phenol
22½ grms NaOH,
110 cc Lactol Centrifuge
acid – works ok –
28@30 cc phenol

15 cc Standard Alkali Salt
Sol 100 Centrifuge liquid
according to its strength

The acid after alkali Salt
in & no excess to turn litmus
must be reinforced by
15 gals 98% to 100 of
White Salt acid – Note

Standardize No 2 Big acid
tank with right amount of
98%

Experiment on a float wire of Nickel
& cleaned Each time,

Reinforce 100 cc White Salt
acid with 15 cc 98 & 100
How much necessary neutralize
100 cc Standard Alkali Solution?

(C)

Microscopic Insp

Titanium Alloys 3 days in _ Oleum

TPC #18 Slight Widermanstadt figure Some Cavities Fair

TPC #5 Slight Wieder Cavities Eaten considerably at air line NG

TPC #11 Wieder Strong Eaten some, Only fair

Special Copper before put in acid innumerable islands or isolated pieces like Fungal Cavs trap, after acid Eaten out some, but it practical Cant see that the acted on by Naked eye -

PPC #29 Scarcely any attacks No Wiedermanstadt figures

PPC #10 Attacked some Has Wieder figure shows Ladders which are not attacked hence it practical

TPC #8 ditto

#1 Round dots Very little attacked practical —

TPC #15 Part stands up part eaten out — fairly deep No Wieder — fair —

In Centrifuge acid No 1 + No 29 absolutely no action Vall the alkali turn solution black

100 cc # 2 Trank acid white salt in
+ 15 cc 98%
Took 20@24 cc to neutralize
50 cc Daily fuel solution

(5600 lbs 1600 gal water)
+ separation is not fine
Clear to slightly milky
+ bubbles at bottom Is
practical —

100 white salt acid 20 cc 98%
used 20 cc of this to
neutralize 50 cc Daily
standard fuel solution
Separation good but little
milky at bottom but OK
16.6% 98 in the mixed acid
the mixed acid is white
from precipitate —

10% 98 in 100 white salt
acid. fair —
Used 28 cc mixed ~~salt~~
acid of 50 cc Alkalin
sludge and 20 cc —
Seems to work good

Opdyke Checkerboard sands
for Pora
200 lbs Glauber salts daily
1000 " Fe
100 " NaOH
200 litres 98% H_2SO_4
all daily —

Luhr & moor
speed variators to
centrifuges

6-C sq ft Cocohaer 1 inch thick

245 gals Mixed acid
150 gals Bengal } 1500 Myrbane

Spec Grav Mixed Acid 1.710
Weight gal 14.33 lbs

3510 lbs used per Nitration
Average Cost 290 / 380 } 3.35 Cents lb

Acid 117 78
Bengal 90 00 — 60 Cents
207 78

13.85 cents lb Myrbane

Expmt

Dalleys Benzenesulfonic acid

Benz Acid 200 cc
400 cc saturated sol of salt. Cooled in ice water but beaker too large didnt cool down below 40 Fahr, it was very thick so thick it piled up when emptied into Vac filter + had to be patted to get it level.

Obtained 290 cc of liquid
Weight wet cake 388 grams
Treated this very cautiously with Shell salt not with vigorous stirring, till all came out + 35° Fahr brought out no more
No excess Shell salt
Weight White salt cake 67 grms
Tried this acid as neutralizer on Dalby Fusion Cake in proportions of 5600 lbs 1600 gal H_2O – gives 5cc phenol crude

But under phenol is 2 cc of white flocculent stuff.

We shall have this trouble from lack of acidity –
Otherwise works ok no white sediment at bottom, solution milky from slight floating flocculent precip – This can be worked with extra acid 2nd Neutralization

Used same Shell salt acid but to 100 cc added 10 cc of 98% acid. Works no better 3 cc of white flocculent under the phenol 5 cc –

By using 16 cc of the 10%, the flocculent stuff disappears by adding 2 cc more making 20 cc
Salt acid solution nearly

Clears, no flocculent, phenol sharp.

Hence 100 cc Shell Salt 10 cc 98%

20 cc of this solution does the business – While 16 cc will neutralize & give Litmus full size it requires 20 cc to dissolve the flocculent & give sharp phenol line
This makes 8.33% of 98% to 91.67 of Shell Acid

It is evident Dallyo fused cake is very poor stuff & that above proportions must be widely changed especially when we use 3000 Soda to 3600 Beng Na Salt.

100 parts water at 14°C 35.87 NaCl
9°C 35.74
25 C 36.13
40 C 36.64

Aq saturated at 15°C 1.207 Specg

35 parts to water

600 gals water 4800 lbs
Requires 1680 lbs dry salt.

Think 1600 is practical -

Wash Benzolin with Conc. NaCl — Effluent at press. Wash with Absolute Alcohol hot, recovering salt dont dissolve

Kammerhoff
110 Litres Benzol - 170 Litres
98% acid 2.96 to 1 -
8 hours - Can make 3 sulfonations in 24 hours 73.5 H_2SO_4 26.5 Benzol

Fuse - 900 lbs Benzolin with
720 lbs NaOH. - perfect fusion
420 lbs Phenol 7 to 8 hours
Can make 3 fusions 24 hours
44.45% Soda 55.55 Benzol -

Neutralize for Phenol takes
8 hours - Product 400 lbs about

Kingo Calculations is what for
600 lbs Phenol daily we
should use 750 lbs Shell salt
6 H_2O -
1380 lbs 66 Baume (98%)
9600 lbs Oleum

C715

King – for Aniline 3000 lbs day
400 lbs 40° HCl or
565 " 32 "

Acid Contracts

175 Tons month Mixed acids
59% H_2SO_4 – 2 mol formula Mr 98%
or 100 Tons month
26.27% HNO_3 2.9 c lb –
Runs To April 1st 1916

100 Tons 98% acid month 15
Dec 31 1915 all used in the mixed acid

150 Tons Oleum 20% 1.12½ c
per 100 lbs –
100 Tons Oleum 15% 5 Franco
get contract for Silver Lake –

160 Tons month B+J 3.8 c lb –
Dec 31 1915

Grasselli for Kammerhoff
200 Tons month 1.50 100 lbs
98%

Phenol Contracts

Mitsui 1660 lbs day .50 c
Stern Hirsh 4000 " .76 c
Hoffman .76 c $
Hayden .50 c

Soda Contracts get $

Benz Na from Centrifuge old 1st
made weighs 50 lbs Cubic ft
Dried 40 lbs.

King says 600 gals water 43" high
1350 lbs NaCl.
325 gal Benzenesulfonic acid
run in till shows 61½" high in
Tank

King says 600 gals Benzenesulfonic acid
1200 gals water
2700 lbs NaCl —
Believe this is too much water,

King say with Fusco 15%
Oleum need not use any
98% Use 3660 lbs
to 2000 lbs Benzol —

Shell salt Soln 1.837 pts water
at 15° Cent.
100 parts Water at 15.5° C
dissolves 200 parts anhydrous
Shell Salt,
I found 40 parts in water
50 " Shell OK +
Great solution —

Benzenesulfonic acid 86° Fahr 30 cent
1.470 Weighs 12.24 lbs gal —

Centrifuge acid 1.207 Spec G
Weight 10.05 lbs per gal

White Salt reaction Tank/with
Shows 11 gals to one inch
Shell salt tank - 6 gal to one inch
Use liquid 36" high in both —

120 gals water 1200 lbs (2 lbs) shell salt
dissolved - gives 217 gals brine
increase 81%

The Reaction Tank holds 400
gals To this about 60 gals
Shell salt Mix is pumped or
15 gals to 100 of acid according
to density of acid —

Sulfonation 275 gals Benzol
put in during 1/2 hour then
30 1/2 gals 96% added
Then 213 gals 20% Oleum
gradually added so as to keep
temp just below Boiling Point of
Benzol + cooled from time to
time till Benzol almost gone

King

Salting
600 gals Benzinesulfon Acid
1200 " water
2700 lbs Salt should be 35% of
the water or 3360 lbs salt. 9600
35
3360 — this
gives a little less than
Salt when 2 Vol
of Salt sol to 1
acid is used.

3600 lbs 96% Na
2000 " NaOH
Temp 300 to 330

Took 29 ~~men~~ men to unload
a Shock Car

Took 5 men to ~~unload~~ a box full of
shock at Cent Shop —

~~Experiment — Determine
increase in Volume of the
water after saturation
with Salt~~

get Organic Chem 2 Vols
Cohen

Text book Organic Chem
Holleman

Modern Research in
Organic Chem, Pope –

Calibration of Salting Trough
13.3 gals per inch.

In the Salt Solution the
Salt is 25.37 % of the
total weight (dry salt) or
not 22.1% as King has it –
Kings is too weak & dont salt out
well — Use 2 Vols Salt Solution
to 1 of Benzenesulfonic acid –

2 Vols is a little too much

2000 lbs Benzol sulfonic acid
requires 1487 lbs Salt.

Experiment 100 cc saturated
Salt Sol. 50cc 98% Very
considerable Salt came out
had to add 65cc more water
to make it clear again

from this it looks as if Kings
Solution OK 22% Salt in
Salt Liquid — not 25% as I make it.
This only has 15.4%
I put 25cc 98 more in but
didnt bring out any salt
Strange! 25cc more acid
Still No Salt — ! !

300 amp 3½ V will work
Churchward self starter on
Ford - Worst condition —

Experiment

Took 100cc saturated salt
solution put in 25cc benzoic
followed out got 93 cc liquid
Then added balance of benz
acid 25cc followed out
73cc of liquor — This would
not dissolve any salt.
Then added half salt
followed out ~~[illegible]~~ half salt crystal
got 62cc liquid This would
not dissolve any appreciable
amount of NaCl —

~~House Yale to 20~~

Dallys Salting Tank
20 gals per inch or 1/8
the average
After salt is in the volume increases
This volume should be measured
& then 2 Vols salt used for
1 Vol Benzene sulfonic acid

480 gals water used - this is
28 1/8 inches

Get desk lamp for use over
drawing board —

Get 1 foot ~~chunk~~ jaw crusher
for soda —

Rig up steam pipe for
cleaning soda —

First fusion 3600 2000 Na
uncorrected for moisture or acid
38.3% Na – Not enough 1000
thick —

To Correct 2nd batch of 3600
added 380 lbs. giving 3600
pure, thus with 3000 Na
is 45.5% Na. Corrected —
or 43% uncorrected —

Started at 8 am hot pot to
put in Na. its not melted at
8 AM next day 24 hours

It needs steam + Greenhung
up to 1" @ 1½" piece —
Herman in + pipe steamed
temps been about 250° Cent whole time

Nat'l. all melted 10 am 26 hours
Steaming did the trick
Think good test for Sulfonation
to test if Benzol all acted on
is to use small distillation
flask put in 100 cc + distill over
into a small cc glass —

On sulphonating the Total
diminishes 1½% (10)
213 Gram 30 gm% 275% benzol

Started 10 am put in Benz Na
in No 2 fusion – 20 shovel
full at a time – 300° C
all in 12 45 – 2 3/4 hours —
get 100 lbs real asbestos
for plugging fusion
pots —

#2 Fusion

Filtered off clear sol from Quenching #2 Fusion, before the Extra 6" of Water was put in — The solution is clear + very light yellow. The sediment is very large, it is not Fe_2O_3 but acts as if it was precipitated Na Sulfite + sulphate.

1500 gals was used in the Quenching Tank

3600 lbs Benz Na + 380 lbs Extra used to make up for acidity + water in the 3600 lbs

The Clear liquor filtered off from the pickup was neutralized with Conc 98% Acid -

A white iron coloring of Cobalt of phenol appeared thick + Muddy — NG This solution is altogether too thick

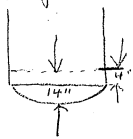
After adding 6 inches in height in the Quenching tank another sample was take This had some sediment the liquor with sediment was changed from gray to brown by the additional 6" of water + sediment was very much less - This worked pretty good with Centrifuge acid

Taking the 1st Sol After 6" water added it may be necessary to add an additional amount of water apparently 520 gals - but as I am to filter the mud it + add 2 waters extra it is likely that no additional water but this will be necessary

The Quenching Tank is
6 ft deep 8' dia —

After #2 fusion was quenched
+ 6 inches extra water added.
I found by measurement
that when stirrer was
running the water was
within 12½ inches of the
Top —
But when stirrer was
stopped it was 17½ from
the Top

Our large 20 ft settling tanks
has a rounded bottom + the
lowest outlet is 4" above the
bottom Edge of the outer
shell



This probably holds 200
gals + will fill from 1st
fusions thick of the
bottom with 6½ the outlet,

Soda Drums weigh 675 lbs
21 dia 30" long
3000 lbs is 211 gals

Notes made #2 fusion + Quenching

Goldwaithe says Quenching
tanks 424 gals to foot.
This would be 35.33 gals to inch
instead of 34 and I figured.
There is 260 gals slip somewhere
if we lost nothing in pit + assuming
208 Solid gals NaOH, + 260 gals
Being Na solid

Get piece of #2 fusion + dissolved
weighed quantity in water
see how much increases pick

see about acids

No 3 fusion Na all in 2900 lbs
Na hydrated strong of common
at 1230 psi — Ended 4.30 pm
ready for Henry — 3 hours 50 min

Shell Salt liquor 12%

Centrifuge acid 15% acid

up 160 gals in Settling tank 20 gals
for 1¼ inches
that 1⅛ —

50 cc Water 50 cc 98% H_2SO_4
when cold contracts
4%

Alkaline Sol from No 2 fusion
without extra 6" of water
put — Overflowing tank
is 1.215

Waste Nitrating Acid
78.3 acidity —

50 cc White Salt acid #2 tank
+ 50 cc Waste Nitrating
acid — This solution
This solution neutralizes
100 cc #2 fusion required
giving 10 cc phenol
phenol + good —
38 cc ½ Normal used —
well make certain —
This Combination gives 46%
acidity —

Shellac liquor from No 2 tank
. Saturated with NaCl good
separation got 7 @ 7½ cc
phenol from liquor #2 fusion
instead of 10 Mentioned here
got, it is practical —

Acidity of Well salt acid
12% Large amount of white
precipitate settles at bottom.
15 cc —
If look 110 cc of acid with
NaCl in to neutralize the
100 cc alkaline solution —

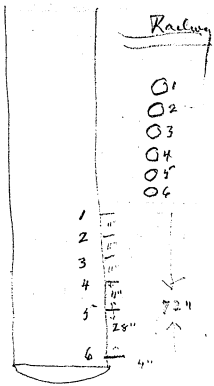
CO_2 #2 fusion liquor 100 cc
Required 2 hours 15 min to
neutralize got 11 cc phenol

With 100 cc #2 fusion liquor
nearly neutralized with
Nitrating spent acid —
finished with CO_2 — look
about 1 hour 20 min can
be done in one hour probably
less. Using CO_2 prevents
action of HNO_3 on phenol

Neutralized 100 cc #2 fusion
liquor with 98% acid
½ Water ½ acid by bulk

Took 30 cc got 10 cc Phenol.
This test is to compare #2
with #3 just fused —

Test of #3 fusion gives 10 cc
or is about the same as No 2 fusion
it may be 10½ — There is considerable
mud probably same amount as
#2 fusion —



#2 fusion in Tank 4 am. 14th -
put on top of No 2 fusion -
OK No 2 cook at 10 10 am -

100 cc #1 Centrifuge Acid
Requires 10 cc Shall scale liquor

In neutralizing - for Every
gal of alkaline liquor
add 1/2 lb of salt, then
neutralize.
This is about 1000 lbs per
fusion -

Neutralizing Tanks average
1 1/2 for 20 gals -
6 deep - 6 dia -
2000 gal alkali in 1 fusion
Neutralized in 4 sections
of 500 gals requires
28" in Tank for alkali -
& about 30 1/2 of acid
250 lbs salt

Settling Tanks after neutralizing
4000 gals fills 2 Tanks
Leaving 2 ft on Top of
Each Tank 7 hours will
settle it,

Water 48cc 13.5 grm NaCl
increase from 48cc to 52.5cc
9.15% increase Salt

Fusion Kettle (Empty)
Burn 1 1/4 Gas hole
in 23 minutes

Caum- Very ~~rich~~ heavy
~~paddles for Acetone Pots~~

Order the other neutralizer

Reg rod with light on for
fusion pots

Gauge glass on
neutralizer

Caum, design ~~an~~ other
Still 7 ~~ood~~ Lady

Kent say 8 ft dia Tank
376 gals ~~per ft depth~~
~~and~~ not 474 given by
Geldrie, which is 8 ft 6"

3 ft	52.88
4 ft	44.00
5 ft dia	146.88 Gals
6	211.51
8	376.01

453.6 mlg to Lb
mlg wright factor to sqr a circle

3785 cc 1 Gallon

Atomic weights

Chlorine	35.4
Copper	63.6
Iron	56.
Lead	206.9
Magnesium	24.3
Na	23.
Sulphur	32.1
Zinc	65.4
H	1.01

Get Carload of [illegible] for Neutralizing

Put Exhauster top of Neutralizing Tank

The white sediment which settles out all have phenol tangled in it quite considerable — Nothing but Benzol Recovery will work on this or probably Benzol will get entangled also but its burden of phenol will be light,

We should have considerable Benzol by entanglement,

First thing get 8 or 8 ton white salt by truck & order Carload —

Stuff drawn off by Benzol recovery from #1 Thickener Very thick Mud — Can't Separate with Benzol, Benzol makes Emulsion + Dont settle out Must get rid of it —

There want a great amount of phenol in it —

Started Sand filter 4.55
Very thick mud —
to do 6 fusion only got
1 hour 36 min to filter 3 times
dry 9 pm — put 3/4 " water on at 9.15
18 Filters held 2.75 grs one
Charge

300 grs Mud to 2 fusion

Expt 100 cc Mud from 2nd + 3
fusion Very thick took 100 cc
Hot work 1 hour 20 min to
settle 2 1/4 cc in 100 cc glass

Poured in filter paper funnel
18 min 28 cc off — add agr
to mud point left —
in 30 min more got 35 cc
added agr — 2nd time,
27 cc in 31 min —
added agr got 26 cc in
27 minutes Total 1 Hour
48 min — Total water 116 cc

Possibly only 2 waters necessary
but think 3 is best as last
one stays in —
Leaving only 7% of which
28 cc is pure solution,
if 2nd water displaced
balance or 35 cc, — this would
be 63 sol fairly pure
116 total, probably 60%
strong —

Therefore 1st coming
followed by 3 waters —
then clear out,
last water need not be
so much — as large
generally mud dissolves

The mud from above filtering
of 100 cc shrunk to 1/3rd yet
when washed & put in 20
300 cc water + mud it settles
very slow 10 cc in 5 min

Sand filter started 5 pm —
dry at 915 — put water on it
to 1/2 inch of top of sand at
915 pm —
1st water absorbed & dry at
1222 am put on 2nd
water 1/2" from top
— Dry 2.58 — put 3rd water
on tonight home — 2 h 36 min
took 2nd water
Thus tests take 12 hours
18 gals mud 6 fusions
Required 55 mins/gms —
4 X 6 — Keg + 3 coolers 1st time
2 hours 42 min —
On + dry in 29 min
1st aq " 65 "
2 aq " 50 "
3 aq " 15 "

Small Vac filter, 6'6 inches
area, Mud filled to brim
Required for dryness 6 Minutes
Filled to brim with Water,
Required 10 mins to go
Run — filled again,
out in 5 min —
Holes got in Not practical

ON 11 30 am

9 net gals. mud

No 2 The 1st filler used, is now load with 1/2 mud 1/2 coarse - on 11 30 am - its within 5/8 to 3/4 of the top Edge next the office - Use 14 gals. Mixed mud to clap chrysolite

Think its alloggellers too thin - 1 Agg 2 mud is probably more to thick

2 + 3 at 1 49 pm. 160 cc minute 5 pm 3 nearly dry - 5 Hours 30 min at 5 pm put in 2" water

#1

Note, at 3 20 pm, Bottom Cock Run clear, 5 gms on #2 Tank. 1/2 charge its clear -

and stirred mud up with hoes - Very little sediment - it gets diluted in Can by stirring -

ON 11.50 am 13 net mud

No 3 loaded with 1/4 water. 3/4 mud - #3 never used + so dry

1st pail does appeared on 11 50 am

2nd pail didnt Cover Bottom

3rd covers all but one high spot

4 pail still shows high spot was full very slowly

5 pail just Covers

9 pails 18 gals - 3/4" of Edge filled at 12 45 pm

at 4 pm only mud -

Put on a filling coarse 1/2"

5 45 pm nearly dry

Took 100 cc mud, vac filter
weight Cake 76 grams 76%

50 cc Mud 50 cc water
Weight Cake 14 grams

25 cc mud 75 cc aqr
weight Cake 6.1 gram

75% mud 25% aqr
weight Cake 46.3

50 cc mud 50 water – then washed
with 50 cc aqr weight Cake 11 gram
after three washing 21.8%
hot water 2.07 grams

75 mud 25 water washed water
50 cc water weight Cake 7.5 gram
37%

As only 30 gals was
taken out of #1 Tank
with 2 feet in it
replacing water was clear
Note the Capacity of Settling
Cubage at 4" to Drain is
120 gal – 9 to 10
use recent header
75 gals per foot or
450 gals of Mud for
6 daily feeds

7 gals mud 7 gals water
4 times daily 15 feet
well dry after 15 hrs

Big Storage tank set & graduated of full length
How about air space of it was decided probably know to pump, as it is for records ok

3600 lbs Benz Na should give an average of 7 to 1 gal benzol
241 gals phenol

Our tests show 5 cc to 100 cc of Alkaline Sol'n & 2 cc Sulph Acid Benzol
We should get for 2½ Neutralizing tanks full
100 gals from floating & 25 gals from settling
Total 125 gals —
a loss of 21.87 gals —

275 gals benzol of Sulphonation should give 4632 lbs of Benzenesulfonate Soda

3600 lbs Benzenesulfonate Na should produce an average 7 lbs per gal
1554 pounds
186.6 Gals

2 Neutralizing tanks charges 93.3 gals per settling tank on basis of the liquid in Quench tank

If Quench tank holds 2000 gals should get 9 cc for Every 100 cc Liquor

Theoretically 275 gals Benzol sulfonated yield 2418 lbs phenol & 3600 lbs Na salt 1880.
2000 gal = 11 cc per 100 cc Liquor

If 2000 gals in Quench tank
from furnace 3600 Pounds Na Sul

1000 cc of collected liquid of
9 cc - accounts for 1514
10 " 1682
11 - 1851
1880 is theoretical

The mud from settling tanks
20 ft of filtered 1/2 of 1/2 bag
Oxley settles 1/2 in 24 hours
This shows advantage of crystallizing out of the Na Sulphate Crystals from solution after concentration

Pure 98% H_2SO_4 1/2 of water 1/2
Spec 1.500 - 48.1 Baume
H_2SO_4 59.7%

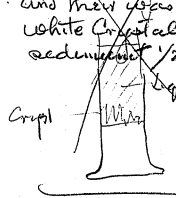
If we pay 1.50 1 pound for 98%
should get chamber acid at
91.8 or 18.40 Ton

Meadocroft about trading
our Gas for good salt,

Butterworth & Morrow about chamber
acid

Phenomenon
Made 2 of Mud 1 Water
" 1 of Mud 1 "

Put in 500 cc jar
in 36 hours the sediment was
of same height in both jars
and there was a crust of
white crystals on top of
sediment 1/2" high



No crystals in
Mud yet the
liquid was above

Strange

Rec'd & ordered the 3rd Egg for Anline Pats —

Dog Glasses for Anline Pats —

1 Gal Benzol should run to 16.84 lbs Benz Na Salt
Theoretically —

2.316 lbs Benzol should on basis 1 for 1 produce 1 lb phenol

Each sulfonation 1 to 1 basis should beat use 2 and 1 lbs phenol —

From rough Experts at Laboratory the Shell salt percentage is about 11 @ 12% of the Benz Na Salt extracted

100 Benz Na
11 @ 12 Shale Sect.

Fine Crystals undried white NaCl from Newark Shales about 3% moisture —
a OK —

Kammerhoff liquor after Neutralizing Contains in 25 cc 348 mlg phenol
26 grms per gallon —

24000 Records daily
without using 20% old

	Daily		24 days Monthly	
Shellac	2500	OK	7000	92400
Para. B+V	46	OK	1100	13,200
Phenol	3300	OK	80 000	960 000
Wood fibers	16000	OK	384 000	2300 Tons

probably more –

J. Farmer Alloys samples only one that stands
Cellulose acc for 2 weeks
is No 1 + 29 TPC
No 1 is too gritty to
roll out 29 comes rolled
like Porcas with pressed
cementing — lb
ideal for Grams —
It ok its Cuprammonium
Manufacture Grams

Castner Electrolytic Alkali Co
Niagara Falls

Tell Kaminnoff don't drain
from storage tanks till
from Cairo or Keep storage
tanks full —

Draw off 50 drum or
exact volume — more pump
20 or 30

Filtering sediment from bag 6
Fusion Liquid tanks —
No 2 1/2 mud 1/2 water —
Mud from area of 6" sq
less than 1/2 thick gives 4.5
grms phenol 162 grms per pan
5 Runs daily 810 grms
18 pans 32 lbs lost
with 2 of mud 1 of water
loss 50% more 48 lbs —
This is good enough — Used 1/2"
water after each filtering to wash out

(Continued)

Therefore filter press will probably handle mud from 6 fusions — when mixed ½ mud ½ water or stirred & after gassing dry (10) no water noticed on top (should with ½ inch water & broken lines in gone decomposing mud & peat for fresh charge

We should have a 6 ft Revolving fan at Benzol building place

Our Acid for neutralizing still Contains 4 grams Ammonium Sulf Salt in 100 cc or 152 grams per gal — which stays in at Ordinary temp but Comes out by chilling in brine with the floating in at 35° Fahr

This would be 4000 lbs Ammon Salt per 6 fusions — or 1800 lbs ~~Benz~~ Phenol lost daily or 1 lb per gal Benzol — Evidently Tarry phenols have an water fractionated & brine circulated

1 lb Benzol theoretically produces
1.205 lbs Phenol
8.796 lbs per gal Benzol.

275 Gals Benzol
213 " 20% Oleum
30 " 98% H_2SO_4

Shrinkage 11.2% = 58 gallons

4065 lbs Benzene Sulfonic acid formed
562 gals water formed

1492 lbs Salt required to Convert the Benzene Sulfonic acid to lbs Na Salt

1399 lbs (110 gals) Equivalent to 98% H_2SO_4 left

1656 lbs salt required to Convert the residue of Methylcinnamic acid into Soda Salt,

1492 lbs salt produces 926 lbs HCl whose neutralizing Capacity Equals the original

1656 Salt gives 1028 lbs HCl

Go down to Saw Tooth room
how we accident more rosin
& about door to packing Case
room

600 gals water 1350 lbs Salt
put in (Kings) increases
bulk to 655 gals

511 put into 1 Sulfonation
Shrinks 11% making 456 gals

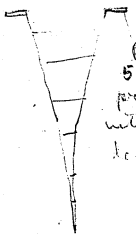
Figure 446 gals sulphonation
5300 lbs water 1492 salt
increases to 722 gals Liquid
This supplies the right
amount to Convert all the
Benzene acid to Na Salt,

2 Vats Salt Sul Calc for 170 gals
Extra – This neutralizes some free acid

allowance for Expansion this is 2 to 1

Meadowcroft ⊕

Warm clothing people w/ well impact TN with Resin in + prices should be for Rosin free Lard.



Put this on 5" out to prevent corners with the Edge — to be tight

Get tank to settle Myrbane in —

Kaumerhoff says in his Crude Phenol 17% Cresols or 2% Load in Oil

Net after distilling 99@85%

1.264 Crude + 2% second run

Conc Sol Benzenesulfonate Soda poured into saturated Cal Salt gives the salting out or precipitate — turn cold in ice chest

Order tank for phenol

Pr send one in 2 ft 10 high

2 ft dia for separating

30" High 48 diameter

Round bottom pipe — bottom.

Ask Meadowcraft if our Soda Contracts are 100 + 125 from Savery If so its good for 12000 lbs phenol - Quickly -

Get 3 books like this -

Hoffman Varrentrapp Speaks our Myrbane -

Get 3 more shafts & paddles for Aniline pots -
3 more for Myrbane pots
1 Extra for Nitrating Acetanilide
1 " " Acetanilide wash
Enamelled -

Write Dow Chemical Co
Midland Mich
Info Fused Magnesium Chloride

Filter the Mechanic -

Send recs to Mr Thermof
1 bottle Cosmic
Advertising Cream
for Mr Hoffman -

The residue from distilling Crude Phenol is NaCl Na_2SO_4 Na_2SO_3 + Chl Fe with some phenol - There is good amount Fe, perhaps as $FeCl_3$

1.C1247

Rem —

The #30 [illegible] Cam are not operated by Inspectors right, not at all [illegible] too fast.

See Luke about repairing filter press plates —

Moore Hird, move

Repair curb —

Luke Hurry up Screens Rotary 8 X 3 +

More Cans Mr Bryce

Get auger for slush Cam

Mr Cadwaller — find out how many letters were sent out to find out about [illegible] men & how many answers rec'd

LOE are finding out lots specials reported + No such places —

Try Dimethylaniline Sulphate or base also phenylhydrazine & Quinoline in test Bell Call to note polarization of slag Cures

Chem Abstracts 2022

Aug 10 1915

Chem Abst. Aug 10 1915
p 2141 —

Mason — See appropriation for determining Benzene Hydrocarbons in Dow gas grad —

Polymerized Vinyl Esters such as Vinyl Acetate, Vinyl Chloroacetate by heat or Quartz Lamp solid transparent Substitution Lake Celluloid formed fireproof & Odorless
German Pat 281 687 July 4 1913 — Chem Fabrik Grenzheim-Elektron —
Chem Abstracts Aug 10 1915

See of 5% Para polymerized Gelatin —
ditto Sugar — Glucose —

Chrysanthemum wants 1 Extra ton Sulphur Tank Nolefied Cpum

0 | 000000000

Meadowcraft — Benzol Tank Car for Water Dogwood service — Leave one

Ask Hale what he counts when he adds the Extra 800 Lbs To the 3600 lbs of Benz Soft,

Did 2 under 3rd Egg
for Amline pot

Get thick mud Vac filter
then make water. Come
filter then Heat Vigle
Salt see if any [illegible]
Benz Na [illegible]

Overshot 46 inches
after change 9½ inches
higher add 4" more
of Water

Kammerhoff Look carefully
to packing on Benzolin
devil — No switches for
Motors around

Dr Yale find out acid
#2 Tank acid
think we should raise it
with 98% till
50 cc instead 163 cc
Neutralizes 100 cc Alkaline

Try our Neutralized Benzolin
Liquor with Reg Cast Iron
also Buffalo Iron
Also Copper

Look up feasibility of 2 or
more sections Benzolater
Big & the 2 smaller ones of
Buffalo iron wide flanges
Cast iron plain sections
Could be handled & forced
off

Find Salubdely Phenolate Soda

Buy Several Carloads
Black Salt,

Buy Some Tarpaulins -

Kammerhoff get rid 504
on Plugs C -

Get 20 lbs Carb Soda from
Kammerhoff also get
well Salt Get Caller
for trial purposes -

Baldwin - You should
Inspect all records before
shipment for Cracks
H+B write last 3 batches
unusual number Cracks -

See Scott about boxes

Mon 3/9/42 Lott. get me 200 or 300 cc
Mercuplene or high B.P. Sol Naph To
Send 4 or 5 B Bengoline

Try for Bengoline
Carbon Tetra Chl
Acetylene tetrachl
Mineral Oil
Camphor oil -

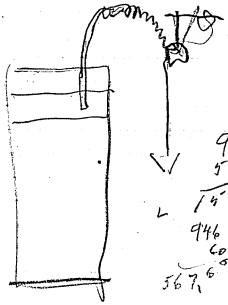
See Leeming about man who
hires - my experience -

Extra Gasoline - no coupon
on service - Lupe wrong

McChesney - List of Dealers
in NO - Mac Exchange
E+V E V+C Sonora -
Live, & Ballo to follow up
for our received man

Received man all make
shipment on Dealers

2nd Filler Started Clean
830 cm



946
567
1513

946
60
567,6

1920
6
11,520
37
8064
34560
43624

450 | 426240 (946
4050
2124
1800
324

Two
198
4190
45
18
45
3698
80
6
2888
2304
1484
70
2
843
320
60
2
2304
7613
324,1
324000
81000

1"

1550
6
9300
15000
188

15000 (14
10800
9200

$1\frac{1}{4} =$

30 4 900

225

5

1125

40

1728) 45000 (2

28

28

224

56

4) 784

196

980

(221

0

256

1728) 39460

34560

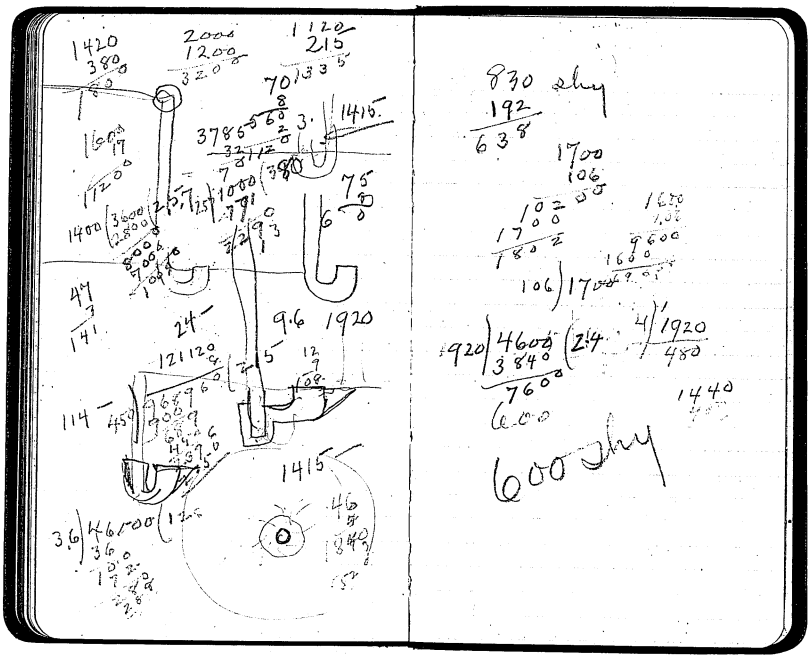
4900

3456

1444

1

C1493



10) 4100 (4

308
CS
2464 gals —

10) 3700

1.06

2900
52
580
870
8) 9280
416 gals —
28 —

28 —

1600
400

666
399
1776

135
108
27

144

4 places where Violet interfered with herself
2 very bad —
twice as loud & very sharp —

40
3.2
25
6
81
64

BT Lucas

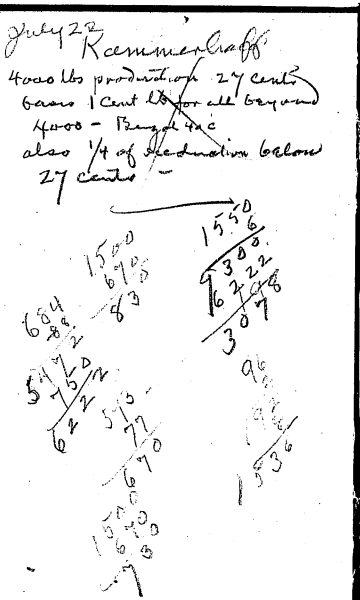
BT Judson

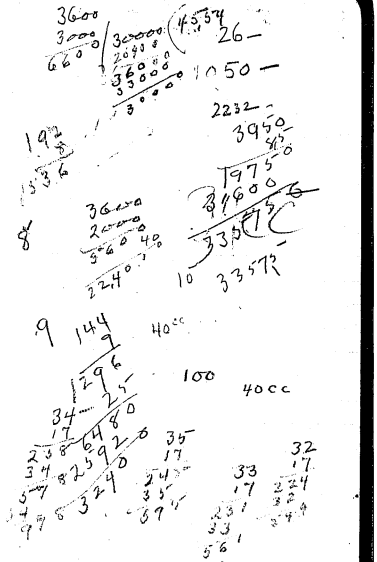
By Newark Transfer

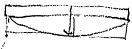
NY Central

July 22 Kammerlaff

4000 lbs production 27 cents
bears 1 cent lb for all beyond
4000 - Bears 4 c
also 1/4 of deduction below
27 cents -







4/.

200

5 9

102
80
816

8 | 15934
1991

86
85
425
680
72
80
736

735
33
3675
2205
2577

247
64
514
1542
159

40

60 ft - 2 furnaces

480 — 57.8 — 66 gallon
64 — per furnace
220
80
2312
660
3968
369.2
72.25 | 3699
80 | 462
578000
34
2310
1386
57.8 | 1617
3,5
2890
1734
8 | 202,3

202
64
808
1212
8 | 1296
1616

4 hours 6

Diamonds 40 5

Truck

clown on road

Blade 455